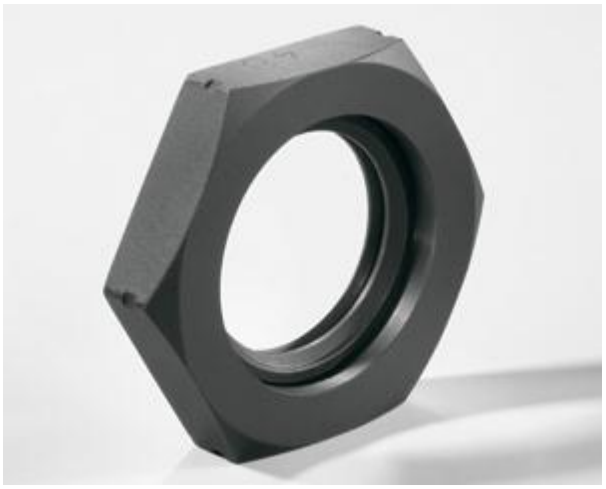
OPERATIONS MANUAL

LoadDISC
Washer

High version



Low version

INDEX

1. WELCOME AT HYTORC 3
2. GENERAL INFORMATION 3
3. SAFETY DESCRIPTION 3
4. WORKING HYTORC LOADDISC 5
5. IMPORTANT INSTALLATION INSTRUCTION 6
6. HYTORC LOADDISC INSTALLATION 6
6.1 SCHEMATICAL DRAWING LOADDISC INSTALLATION 8
6.2 SCHEMATICAL DRAWING LOADDISC USE WITH DISC-DRIVE. 8

1. WELCOME AT HYTORC

Thank you for buying the HYTORC LoadDISC washers!

This user manual and safety instructions is designed to provide you with the basic knowledge required to operate and maintain your new HYTORC equipment.

Please read this manual carefully and follow the instructions provided. If you still have any questions regarding HYTORC bolting equipment, please do not hesitate and call us at +31 (0) 24 3660 660 or contact us at info@hytorc.nl. You can also find more information on our website www.hytorc.nl.

2. GENERAL INFORMATION

Your purchase of HYTORC equipment entitles you to the following HYTORC services:

- Instructions to your employees within your organization by a HYTORC specialist
- Free annual inspection of your HYTORC equipment
- Free loaner equipment in case of failure under warranty
- If your HYTORC equipment cannot be repaired within 5 workdays, you get an equivalent free loaner tool
- 24-hour service
- World-wide warranty
- When you need help abroad? No problem! We help you!
- HYTORC equipment according to the newest technology
- A full year complete warranty
- Qualified work force employable for solutions at difficult challenges

3. SAFETY INSTRUCTIONS

Warning: Your HYTORC LoadDISC has to be tightened by heavy HYTORC tools. Certain safety precautions should be observed to avoid accidents or personal injury. The following instructions will assist you.

- **Read all instructions.**

- **Keep work area clean and well lit.**

- **Consider work area environment.** Electrical Pumps should never be used in an atmosphere that can be considered potentially volatile. If there is any doubt, use an air pump. Note: Metal-to-metal contact can cause sparks, precautions should be taken.

- **Avoid premature tool starting.** The Pump Remote Control is for the TOOL OPERATOR only.

- **Stay clear during operation.** In most cases, the tool will allow “hands free” operation. If the tool must be held or steadied during operation, use alternative means of securing the tool to the application.

- **Guard against electric shock**. Ensure the pump is properly grounded and the proper voltage is being used.

- **Store equipment properly.** When not in use, tools and accessories should be properly stored to avoid deterioration.

- **Use right tool.** Do not force small tools or attachments to do the job of a larger tool. Do not use a tool for purposes not intended.

- **Proper safety attire**. When handling/operation hydraulic equipment use work gloves, hard hats, safety shoes and other applicable clothing.

- **Use safety glasses with side covers.**

- **Moving equipment**. Do not use hydraulic hoses, uni-swivels, pump power or remote cords as means of moving the equipment.

- **Maintain your HYTORC equipment with care.** For top performance, inspect tools, power pack and accessories for visual damage frequently and always prior to use. Always follow instruction for proper tool and pump maintenance.

- **Stay alert!** Watch what you are doing. Use Common sense. Do not use power equipment under the influence of any mood altering substances.

- **Prior to operation:**
  - Ensure that all hydraulic connections are securely connected and there is no leakage;
  - Verify that the hydraulic hoses are not kinked or otherwise damaged;
  - Ensure the square drive and its retainer are fully and securely engaged;
  - Be certain that all connectors, elbows, fitting and swivels are not bent, loose or damaged.

- **Prior to use:**
  - Check sockets for size, quality and flaws (do not use if questionable);
  - Cycle tool to ensure proper function;
  - Be sure the hydraulic hoses are free ;
  - Pressurize the system momentarily; if the tool tends to “ride up" or to “creep", stop and re-adjust.

Comment:
HYTORC LoadDISC’s can only be tightened with a DISC-drive in combination with an Avanti or jGUN. Or use a DISC Holding plate (DHP) in combination with a Stealth. LoadDISC’s can not be reused after dismantling.

4. WORKING OF THE HYTORC LoadDISC

The LoadDISC is a ‘smart’ washer which replaces the standard washer. The LoadDISC consists of two parts: a hexagon outernut and an internal thread segment.

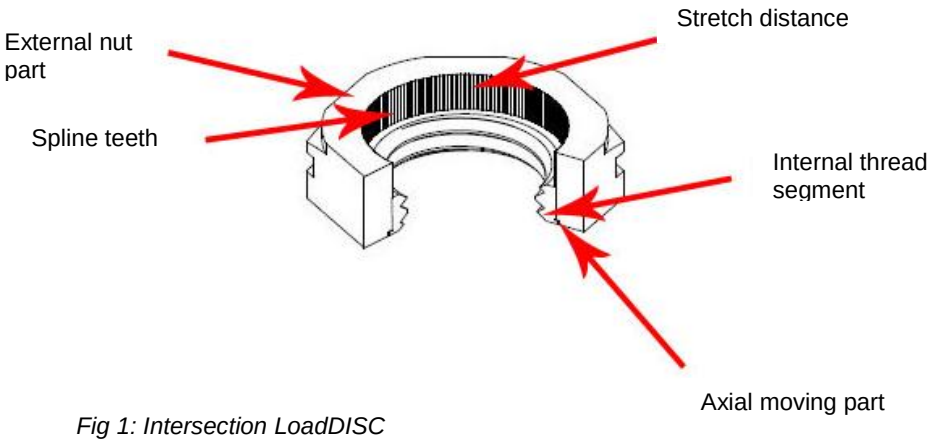


Fig 1: Intersection LoadDISC

The thread segment only moves in axial direction. The thread segment ‘grips’ the stud and also moves in axial direction, without shear-, reaction- or torsion forces. The LoadDISC external nutpart does not turn at the flange surface and therefore the stud and contra nut don’t turn either. The torque converts in an elongation of the bolt.

So the nut does not turn anymore over the flange surface but on the hardened surface of the LoadDISC!

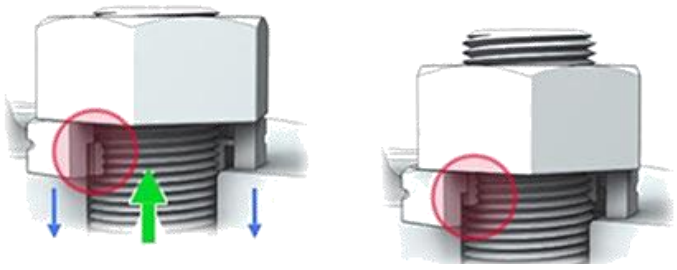


Fig 2 en 3: At time of stretching the bolt, the internal thread segment creates a contra nut effect and prevents that the bolt turns.

5. IMPORTANT INSTALLATION INSTRUCTION

The rounded edge side needs to be placed underneath and facing the nut

The LoadDISC needs to be mounted with the serrated site directly on the flange surface.

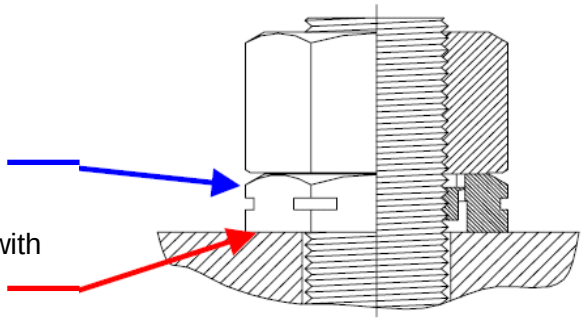


Fig 4: Placing LoadDISC

1. If not indicated otherwise, the LoadDISC's are free form any form of lubricant.
2. The bottom of the LoadDISC needs to be **dry and free from grease**. The same applies for the flange surface, thread segment and stud. Lubricate after placing the LoadDISC at the stud.
3. The LoadDISC is a washer and must be placed **directly under the nut** in the bolted joint.
4. **Do not place the LoadDISC under a bolt head**!
5. Use the rivet fixing if the DISC-drive has one.
6. Please don't touch the socket or tool while tensioning and keep safe distance!
7. It the tool is stuck after mounting the disc, please use the reaction pal for detaching the wrench.

The standard material of the LoadDISC:
AISI 4140 (36-38 HRC) meets the requirements for class 10
For protection against rust and corrosion, the material is treated with a Nickel-Cobalt layer.

6. HYTORC LoadDISC INSTALLATION

Step 1:
It is important to clean bolts and nuts prior to installation for an optimum and equal bolt force. This can be done by using a steel brush, the HYTORC Hycleaner or ultra soon.

Step 2:
Lay down the nut with the bottom on a clean surface and spray the thread with TS-801 Molylube dry.

Step 3:
Turn the nut around. Spray the thread and the complete bottom of the nut. Let it dry for 5 minutes.
Attention: do not lubricate the LoadDISC! As shown in drawing 6.1.

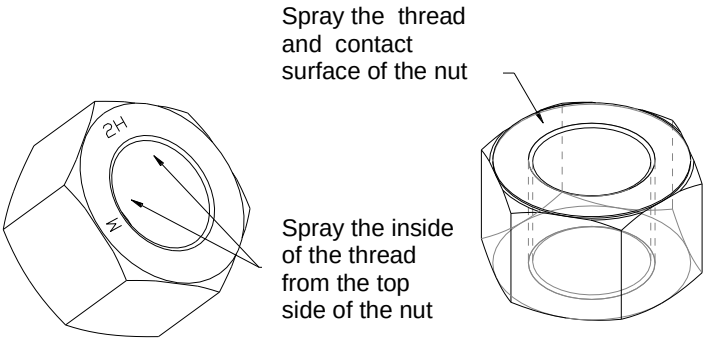


Fig 5: Spray lubricants on the nut

Step 4:
Place the bolt and put the LoadDISC washer on the bolt. Tighten the LoadDISC hand tight on the bolt. Make sure there is no free space between the LoadDISC and the flange surface.

Fig 6: LoadDISC's and nuts tighten on the flange

Step 5:
Tighten the nut on top of the LoadDISC by hand.

Fig 7: Connecting DISC-drives

Step 6:
Secure the DISC-drive on the LoadDISC and nut. Make sure that both are connected and the socket lies horizontally. Turn the outer sleeve of the socket leftwards to remove any relaxation. See the section in paragraph 6.2

Step 7:
Set the pump pressure as described in the procedure and lock it. While doing this, the tool lies on the floor.

Fig 8: setting the pump pressure

Step 8:
Place the tool in the correct way on top of the axle and secure the drive retainer.

Fig 9: torque until required elongation

Step 9:
Run the tool as usual till it blocks. Check if the inner socket turns by looking through the slotted holes in the outer socket. Continue till the inner socket stops turning. The required torque value is reached.

6.1 Schematic drawing LoadDISC installation

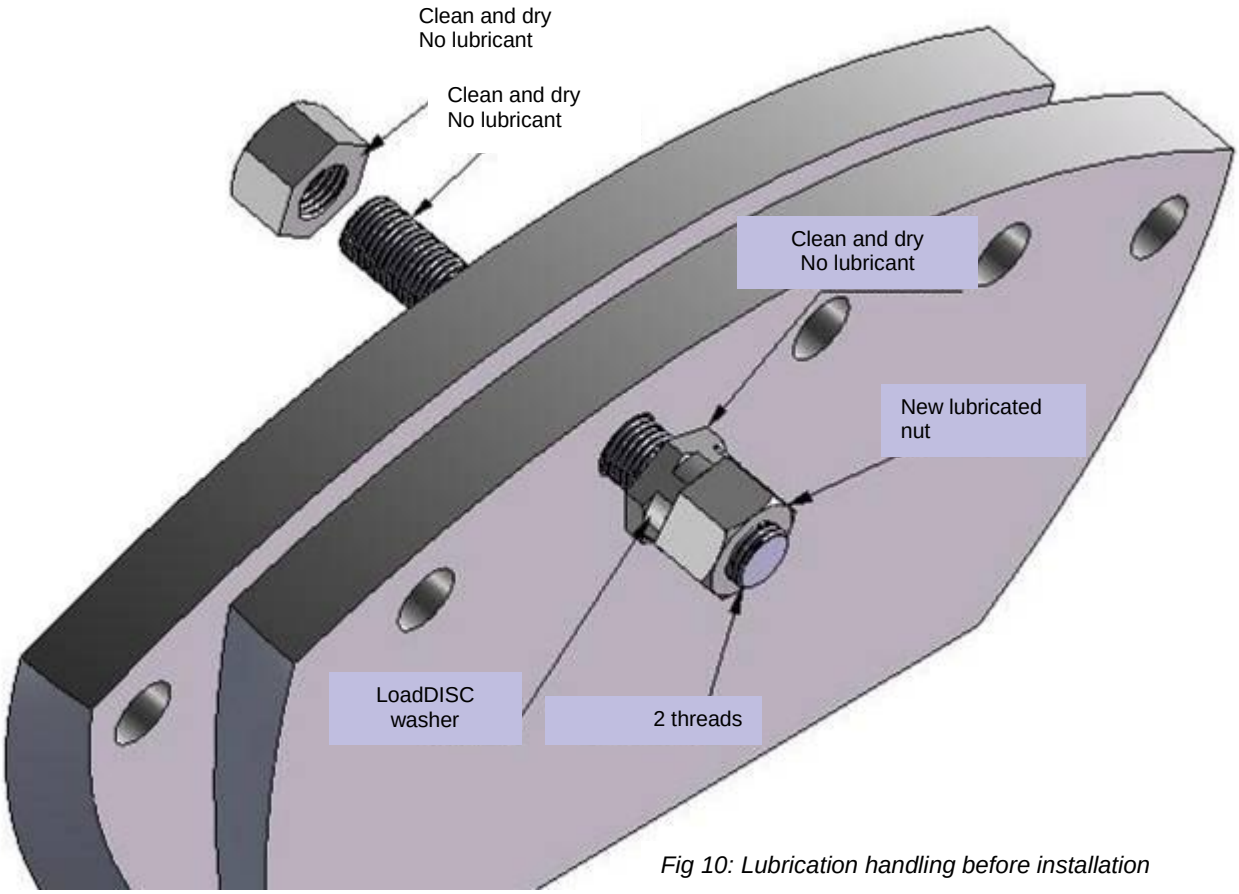


Fig 10: Lubrication handling before installation

6.2 Schematic drawing LoadDISC with DISC-drive.

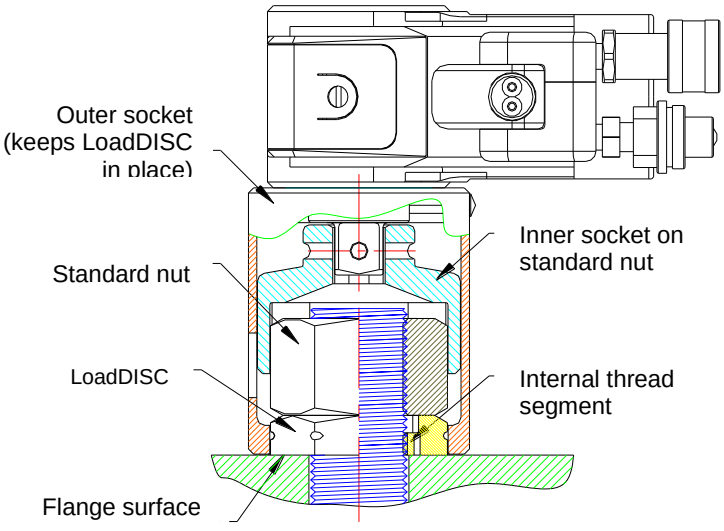


Fig 11: At the time of starting

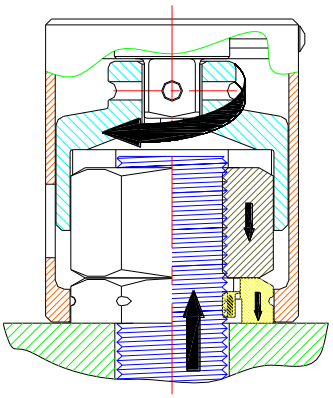


Fig. 12: Elongation at fixation

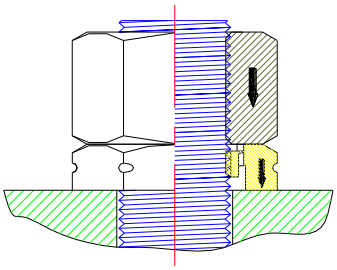


Fig. 13: Final results